CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.07/SC/WMM/Gradation/2012-13

26.11.2012

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **M/s. Sathya Constructions**, Bangalore.

Name of Work : Improvements of roads & drains from NH 7 to Jakkur Kaval Road in Ward No. 7, Kodigehalli Sub Division, BBMP, Bangalore.

Reference : AEE/KH/WO/85/2012-13 Dated: 23.11.2012

Date of Testing : 26.11.2012

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **11400**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	326	326	2.9	97.1	95-100
22.4	2689	3015	26.4	73.6	60-80
11.2	2463	5478	48.1	51.9	40-60
4.75	1994	7472	65.5	34.5	25-40
2.36	1438	8910	78.2	21.8	15-30
0.600	1108	10018	87.9	12.1	8-22
0.075	997	11015	96.6	3.4	0-8

Information is furnished by the Agency

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AG-7.

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ಕೊಡಿಗೇಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಯಲಹಂಕ ವಲಯ
ಬೆಂಗಳೂರು - 560092

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BSCIC ISO 9001 REGISTERED JAS-ANZ

05.12.2012

Job No.: CTCE/BBMP/W.No.07/SC/BM/Bitumen/2012-13

BITUMEN CONTENT DETERMINATION OF BITUMINOUS MACADAM MIX

AASHTO T 164 & AASHTO T 30

CLIENT	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	**M/s. Sathya Constructions,** Bangalore.
NAME OF THE WORK	Improvements of roads & drains from NH 7 to Jakkur Kaval Road in Ward No. 7, Kodigehalli Sub Division, BBMP, Bangalore.
REFERENCE	AEE/KH/WO/85/2012-13 Dated: 23.11.2012
SAMPLE I/D	Roads at NH 7 to Jakkur Kaval Road in Ward No. 7, Kodigehalli Sub Division
DATE OF TESTING	05.12.2012

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	483	482
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	17	18.00
7. Bitumen content in %	3.40	3.60
8. Average	**3.50**	

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Basaveshwaranagar,
Bangalore - 560 079

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ಕೊಡಿಗೇಹಳ್ಳಿ ಉಪವಿಭಾಗ

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Job No.: CTCE/BBMP/W.No.07/SC/BM/Gradation/2012-13 5.12.2012

BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX

AASHTO T 164 & AASHTO T 30

CLIENT	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	**M/s. Sathya Constructions**, Bangalore.
NAME OF THE WORK	Improvements of roads & drains from NH 7 to Jakkur Kaval Road in Ward No. 7, Kodigehalli Sub Division, BBMP, Bangalore.
REFERENCE	AEE/KH/WO/85/2012-13 Dated: 23.11.2012
SAMPLE I/D	Roads at NH 7 to Jakkur Kaval Road in Ward No. 7, Kodigehalli Sub Division
DATE OF TESTING	05.12.2012

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0	100	100
19	32	6.63	6.63	93.37	90-100
13.2	94	19.46	26.09	73.91	56-88
4.75	187.57	38.83	64.92	35.08	16-36
2.36	95.3	19.73	84.65	15.35	4-19
0.3	44	9.11	93.76	6.24	2-10
0.075	15.6	3.23	96.99	3.01	0-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0	100	100
19	26.7	5.54	5.54	94.46	90-100
13.2	89	18.46	24.00	76.00	56-88
4.75	215.29	44.67	68.67	31.33	16-36
2.36	78	16.18	84.85	15.15	4-19
0.3	49	10.17	95.02	4.98	2-10
0.075	12.16	2.52	97.54	2.46	0-8

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Job No.: CTCE/BBMP/W.No.07/SC/SDBC/Bitumen/2012-13 13.12.2012

BITUMEN CONTENT AND GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AASHTO T 164 & AASHTO T 30

CLIENT	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	**M/s. Sathya Constructions**, Bangalore.
NAME OF THE WORK	Improvements of roads & drains from NH 7 to Jakkur Kaval Road in Ward No. 7, Kodigehalli Sub Division, BBMP, Bangalore.
REFERENCE	AEE/KH/WO/85/2012-13 Dated: 23.11.2012
SAMPLE I/D	Roads at NH 7 to Jakkur Kaval Road in Ward No. 7, Kodigehalli Sub Division
DATE OF TESTING	13.12.2012

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	26.00
7. Bitumen content in %	5.00	5.20
8. Average	**5.10**	

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Job No.: CTCE/BBMP/W.No.07/SC/SDBC/Gradation/2012-13 13.12.2012

BITUMEN CONTENT AND GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AASHTO T 164 & AASHTO T 30

CLIENT	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	**M/s. Sathya Constructions,** Bangalore.
NAME OF THE WORK	Improvements of roads & drains from NH 7 to Jakkur Kaval Road in Ward No. 7, Kodigehalli Sub Division, BBMP, Bangalore.
REFERENCE	AEE/KH/WO/85/2012-13 Dated: 23.11.2012
SAMPLE I/D	Roads at NH 7 to Jakkur Kaval Road in Ward No. 7, Kodigehalli Sub Division
DATE OF TESTING	13.12.2012

GRADATION AFTER EXTRACTION

SIEVE SIZE	Trail 1				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	24.5	5.16	5.16	94.84	90-100
4.75	252.4	53.14	58.29	41.71	35-51
2.36	49.6	10.44	68.74	31.26	24-39
1.18	43.5	9.16	77.89	22.11	15-30
0.3	42.1	8.86	86.76	13.24	9-19
0.075	36.7	7.73	94.48	5.52	3-8

SIEVE SIZE	Trail 2				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	22	4.64	4.64	95.36	90-100
4.75	237.8	50.17	54.81	45.19	35-51
2.36	54.8	11.56	66.37	33.63	24-39
1.18	52.4	11.05	77.43	22.57	15-30
0.3	63.8	13.46	90.89	9.11	9-19
0.075	21.6	4.56	95.44	4.56	3-8

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Job No.:CTCE/BBMP/W.No.07/SC/BC/Bitumen/2012-13 12.04.2013

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE
AASHTO T 164 & AASHTO T 30

CLIENT	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	**M/s. Sathya Constructions,** Contractor, Bangalore.
NAME OF THE WORK	Improvements to Roads and Drains from NH-7 to Jakkur Kaval Road in Ward No.07 , BBMP, Bangalore.
REFERENCE	AEE/KH/WO/141/2012-13 Dated: 18.03.2013
SAMPLE I/D	Jakkur Kaval Road Ward No.07
DATE OF TESTING	12.04.2013

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474	474.5
3. Weight of Asphalt and Mineral matter Extracted, g	26	25.5
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	26	25.5
7. Bitumen content in %	5.20	5.10
8. Average	5.15	

GRADATION AFTER EXTRACTION

TABLE - 1

SIEVE SIZE	Percent Passing, %		JOBMIX
mm	Sample 1	Sample 2	Gradation
19	100.00	100.00	100
13.2	87.26	86.52	79-100
9.5	79.63	82.66	70-88
4.75	59.47	62.31	53-71
2.36	50.26	49.63	42-58
1.18	43.53	39.14	34-48
0.6	31.71	27.95	26-38
0.3	22.49	23.61	18-28
0.15	18.78	15.28	12-20
0.075	5.32	6.21	4-10

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Job No.: CTCE/BBMP/W.No.07/SC/BM/Bitumen/2012-13 05.04.2013

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX

AASHTO T 164 & AASHTO T 30

CLIENT	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	**M/s. Sathya Constructions,** Contractor, Bangalore.
NAME OF THE WORK	Improvements to Roads and Drains from NH-7 to Jakkur Kaval Road in Ward No.07 , BBMP, Bangalore.
REFERENCE	AEE/KH/WO/141/2012-13 Dated: 18.03.2013
SAMPLE I/D	Jakkur Kaval Road Ward No.07
DATE OF TESTING	05.04.2013

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	482	483
3. Weight of Asphalt and Mineral matter Extracted,	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	18	17.00
7. Bitumen content in %	3.60	3.40
8. Average	3.50	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Trail 1				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	41.5	8.61	8.61	91.39	90-100
13.2	168	34.85	43.46	56.54	56-88
4.75	165	34.23	77.70	22.30	16-36
2.36	43	8.92	86.62	13.38	4-19
0.3	30	6.22	92.84	7.16	2-10
0.075	8	1.66	94.50	5.50	0-8

SIEVE SIZE	Trail 2				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	31	6.20	6.20	93.80	90-100
13.2	162	32.40	38.60	61.40	56-88
4.75	172	34.40	73.00	27.00	16-36
2.36	75.63	15.13	88.13	11.87	4-19
0.3	26	5.20	93.33	6.67	2-10
0.075	6	1.20	94.53	5.47	0-8

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23.03.2013

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **M/s. Sathya Constructions**, Contractor, Bangalore.

Name of Work : Improvements to Roads and Drains from NH-7 to Jakkur Kaval Road in Ward No.07 , BBMP, Bangalore.

Reference : AEE/KH/WO/141/2012-13 Dated: 18.03.2013

Date of Testing : 23.03.2013

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **25315**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	985	985	3.9	96.1	95-100
22.4	6195	7180	28.4	71.6	60-80
11.2	5525	12705	50.2	49.8	40-60
4.75	4265	16970	67.0	33.0	25-40
2.36	3560	20530	81.1	18.9	15-30
0.600	2055	22585	89.2	10.8	8-22
0.075	2445	25030	98.9	1.1	0-8

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